

BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Cleaning Up The Environment: Progress Achieved But Major Unresolved Issues Remain

Volume 1 of two volumes

Since the 1970's, progress has been made in cleaning up the Nation's air, water, and land--the result of ambitious Federal environmental programs and the investment of hundreds of billions of dollars by Federal, State, and local governments and industry. However, a number of unresolved issues exist which may impede further progress.

The environmental laws of the 1970's reflected a single-purpose approach to pollution control that limited flexibility in decisionmaking. For example, pollution control laws not only increased the volume of wastes--like sewage sludge--but also prohibited or severely restricted available disposal options. The tradeoffs that must be made among the various environmental programs and the net environmental effect of pollution control actions must be recognized.

A companion volume to this study contains case studies of environmental programs in Cleveland, Dallas, and New York.



GAO/CED-82-72
JULY 21, 1982

Request for copies of GAO reports should be sent to:

U.S. General Accounting Office
Document Handling and Information
Services Facility
P.O. Box 6015
Gaithersburg, Md. 20760

Telephone (202) 275-6241

The first five copies of individual reports are free of charge. Additional copies of bound audit reports are \$3.25 each. Additional copies of unbound report (i.e., letter reports) and most other publications are \$1.00 each. There will be a 25% discount on all orders for 100 or more copies mailed to a single address. Sales orders must be prepaid on a cash, check, or money order basis. Check should be made out to the "Superintendent of Documents".

D I G E S T

Concerned over the erosion of environmental quality, the Nation committed itself in the 1970's to a series of ambitious programs to restore and maintain our air, water, and land resources and reduce noise pollution.

Billions of dollars have been spent by Federal, State, and local governments and industry to achieve environmental quality goals. It is estimated that \$735 billion will be spent on pollution abatement between 1979 and 1988.

What have we accomplished? Overall, there has been progress toward meeting established goals. The air is significantly cleaner, more wastewater now receives the required level of treatment, and most drinking water meets national standards. The job, however, is still far from complete. Original deadlines for meeting most key goals have been extended significantly, and as yet unresolved issues--such as how to control acid precipitation and nonpoint (diffused) sources of water pollution and how to cope with reduced Federal funding--will make meeting those goals more difficult. In addition, the costs and benefits of environmental protection programs are not easily determined, further complicating the debate over the need for stringent Federal pollution control mandates.

GAO made this review to determine (1) the progress made toward meeting key environmental goals, (2) how specific cities coped with these mandates, and (3) what unresolved issues face the Nation in the future. This broad perspective can assist the Congress--in a period when environmental programs are undergoing careful scrutiny--to better understand where we stand with respect to cleaning up the environment and to make decisions on future actions.

PROGRESS MADE TOWARD MEETING GOALS

Air quality

Concentrations of the most widespread air pollutants have decreased significantly. Between 1973 and 1978, for example, nationwide average annual concentrations

of carbon monoxide decreased by 33 percent. Substantial portions of the Nation, however, have still not attained air quality standards for one or more of the seven monitored pollutants. The deadline for full compliance, originally expected by 1975, has been extended to 1982. Numerous cities with serious ozone and carbon monoxide problems have received extensions until 1987. (See pp. 11 to 16.)

Water quality

A major part of meeting the clean water goals involves controlling municipal and industrial sources of pollution. More municipal and industrial wastewater receives the required level of treatment now than when national standards were mandated in 1972. The Environmental Protection Agency (EPA) reported that, by the end of 1979, 93 percent of major nonmunicipal sources were in compliance with their permit requirements or on a schedule to meet them. On the other hand, only 37 percent of major municipal treatment facilities were in compliance with the July 1, 1977, deadline requiring secondary treatment. This deadline was extended to 1983 and then to 1988, under certain conditions. Reduced Federal funding for these projects, as well as the reduction in the Federal share from 75 to 55 percent beginning October 1, 1984, may necessitate further extensions of the deadline. (See pp. 16 to 18.)

The majority of water supply systems in the Nation meet national drinking water standards. Still, over 146,000 violations for either failing to test water or for not meeting the standards were recorded in fiscal year 1980. The deadline for granting exemptions to noncomplying systems has been extended to 1986. In addition to violating standards, many communities face monumental problems financing the capital costs of water supply development, treatment, and distribution. (See pp. 19 to 22.)

Solid waste disposal

The Resource Conservation and Recovery Act called for a nationwide inventory of solid waste disposal sites and the closing or upgrading of facilities that did not meet environmental standards. EPA published the inventory in May 1981. However, it was incomplete and was not the management tool intended to apprise the Congress and the public of the magnitude of solid waste disposal problems. Further, little progress has been made toward upgrading open dumps, and EPA has estimated that

14,000 of 20,000 municipal waste sites did not meet standards. (See pp. 22 to 25.)

Ocean dumping

The ocean dumping of industrial wastes decreased by 42 percent between 1973 and 1980. In 1980, no dumping occurred in the Pacific Ocean or the Gulf of Mexico. Little progress was made toward phasing out the dumping of harmful sewage sludge. The volume dumped increased by 49 percent during this period. Further, about 92 million tons of dredged material were disposed of in the ocean in 1979. As a result of a court order, enforcement of the December 31, 1981, statutory prohibition against dumping harmful sewage sludge was delayed pending a determination whether sewage sludge unreasonably degrades the marine environment. (See pp. 25 to 28.)

Noise abatement

Federal noise control legislation was enacted to reduce environmental noise to levels most desirable to achieve health and welfare protection. There have been some indications of progress in reducing nonworkplace noise levels; for example, Federal noise regulations have been promulgated for railroads and motor carriers. EPA intends, however, to completely phase out its Noise Control Program in 1982. Without Federal assistance, many State programs will probably be terminated. Compliance deadlines for meeting aircraft noise standards established in 1976 were extended in 1980 to as late as 1988. (See pp. 28 to 31.)

MAJOR UNRESOLVED ISSUES REMAIN

Several issues will have to be resolved if key environmental goals are to be met nationwide and if progress achieved is to be sustained over the long term. These issues are not an exhaustive list of environmental problems demanding resolution but do represent a cross-section of significant issues that must be addressed if the impact of the Nation's investment in environmental protection is to be maximized.

Acid precipitation

Acid precipitation and the long-range transport of air pollutants pose serious air quality control problems. Acid precipitation has been alleged to damage crops, forests, lakes and fish population and human health. More research is

needed, however, to accurately define its causes and effects and the measures needed to control it.

The practice of dispersing pollutants through tall smoke stacks to avoid ground level concentrations has resulted in transporting pollutants hundreds of miles. Air pollution in one region, therefore, may be affected by emissions from sources well beyond the reach of the region's pollution control authorities. (See pp. 35 to 39.)

Nonpoint sources of water pollution

Little progress has been made toward controlling nonpoint pollution, although it can account for half the total pollution reaching many rivers and lakes. Agricultural activities and urban storm water runoff are the major sources of nonpoint pollution. Control programs are in their early stages and failure to implement them would jeopardize the attainment of the Nation's water quality goals.

Overflows from sewer systems carrying both sanitary sewage and storm water also severely degrade water quality and no area of the country escapes the problem. Such combined sewer systems serve more than 42 million people in an area totaling 2.7 million acres. Projects to correct combined sewer overflows have had a low priority at the Federal level, and estimates of the cost to correct this problem are \$37 billion. (See pp. 39 to 43.)

Ground water contamination

Ground water contamination--which provides 25 percent of the fresh water used for all purposes and 50 percent of all drinking water--is a growing problem. EPA has identified industrial and solid wastes disposal sites as the most important contamination sources. Once contaminated, ground water can remain so for hundreds or thousands of years, and alternate water supplies may not be readily available. EPA proposed a national ground water strategy in 1980, but it has not been promulgated. (See pp. 44 to 45.)

Using the ocean for waste disposal

The National Advisory Committee on Oceans and Atmosphere recommended in 1981 that the ocean not be eliminated entirely as a waste disposal option. Up to now, Federal policy has been to minimize or discontinue ocean disposal wherever

possible. Decisions will now have to be made as to whether and to what extent the ocean should be available to coastal communities for waste disposal. (See pp. 45 to 47.)

Sustaining compliance with environmental requirements

Regardless of whether compliance with environmental requirements occurs slowly or quickly, it is important that initial compliance be sustained over the long term. This would assure that what is restored remains restored and the impacts from the investment in pollution control are maximized. Unfortunately, past studies have shown a high incidence of noncompliance with established pollution limits at municipal and industrial facilities built to provide cleaner air and water. (See pp. 48 to 51.)

Flexibility needed in making pollution control decisions

The environmental laws of the 1970's reflected a single-purpose approach to pollution control that did not always allow for flexibility in decisionmaking. As a result, pollution control laws not only increased the volume of sewage sludge and other residues that must be disposed of but also prohibited or severely restricted available disposal options. Because of these restrictions, government and industry may not be free to choose the most environmentally safe waste disposal option dictated by site-specific conditions. (See pp. 49 to 51.)

AGENCY COMMENTS

GAO sent a draft of this report to EPA on April 12, 1982, requesting comments within 30 days. No response, however, was received as of May 26, 1982, when this report was finalized.

C o n t e n t s

VOLUME 1

		<u>Page</u>
DIGEST		i
CHAPTER		
1	INTRODUCTION	1
	What problems prompted the major environmental legislation of the 1970's?	1
	What key programs were mandated to clean up the environment?	3
	Objective, scope, and methodology	7
2	PROGRESS HAS BEEN MADE TOWARD ACHIEVING THE NATION'S ENVIRONMENTAL GOALS	10
	The air is cleaner now than it was in 1970	10
	More municipal and industrial wastewater now receives the required level of treatment	15
	Most drinking water complies with national standards	18
	Steps have been taken to ensure safe disposal of solid waste	22
	A significant reduction in ocean dumping of industrial wastes has occurred	25
	Noise control: less Federal involvement and extended compliance deadlines	27
	The costs and benefits of environmental programs are difficult to determine	30
	Conclusions	32
3	MAJOR UNRESOLVED ISSUES MAY PREVENT ACHIEVING ENVIRONMENTAL GOALS	34
	Acid precipitation poses serious air quality problems	34
	Nonpoint sources of water pollution are significant but have not been controlled	38
	Combined sewer overflow problems may be too costly to correct	40
	Ground water contamination is an emerging problem of major proportion	43
	Using the ocean as a waste disposal medium is still being debated	44

CHAPTER		<u>Page</u>
	Effective monitoring and enforcement are needed to sustain pollution control progress	46
	Pollution control creates additional pollution	49
	Conclusions	51

APPENDIX

I	Estimated total pollution abatement expenditures 1979-88	52
II	Air pollution control benefits being enjoyed in 1978	53
III	Benefits in 1985 from removal of conventional water pollutants	54
IV	GAO reports on selected EPA programs 1978-81	55

ABBREVIATIONS

CEQ	Council on Environmental Quality
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
GAO	General Accounting Office
NACOA	National Advisory Committee on Oceans and Atmosphere
SIP	State implementation plan